

Claims

What is claimed is:

- 5 1. A composition comprising:
 an aqueous solution for etching polycarbonate at a temperature from about 50°C to
 about 120°C comprising
 from about 30wt.% to about 55wt.% of an alkali metal salt; and
 from about 10wt.% to about 35wt.% of a solubilizer dissolved in said solution.
- 10 2. A composition according to claim 1 containing from about 40wt.% to about 50wt.% of
 said alkali metal salt.
- 15 3. A composition according to claim 1 containing from about 15wt.% to about 30wt.% of
 said solubilizer.
- 20 4. A composition according to claim 1 wherein said alkali metal salt is selected from the
 group consisting of sodium hydroxide and potassium hydroxide.
- 25 5. A composition according to claim 1 wherein said solubilizer is an amine.
6. A composition according to claim 1 wherein said solubilizer is ethanolamine.
7. An article comprising:
 a flexible circuit comprising a polycarbonate film having through-holes and related
 shaped voids formed therein using an etchant composition comprising:
 an aqueous solution for etching polycarbonate at a temperature from about 50°C to
 about 120°C comprising
 from about 30wt.% to about 55wt.% of an alkali metal salt; and
 from about 10wt.% to about 35wt.% of a solubilizer dissolved in said solution.

8. An article according to claim 7 including at least one unsupported cantilevered lead.
9. An article according to claim 7 including at least one through hole having non-parallel angled sidewalls.
10. A process comprising:
 - providing a polycarbonate film;
 - contacting said polycarbonate film with an aqueous solution for etching polycarbonate at a temperature from about 50°C to about 120°C, said aqueous solution comprising from about 30wt.% to about 55wt.% of an alkali metal salt; and
 - from about 10wt.% to about 35wt.% of a solubilizer dissolved in said solution.
11. A process according to claim 10 wherein said aqueous solution comprises from about 40wt.% to about 50wt.% of said alkali metal salt.
12. A process according to claim 10 wherein said aqueous solution comprises from about 15wt.% to about 30wt.% of said solubilizer.
- 20 13. A process according to claim 10 wherein said alkali metal salt is selected from the group consisting of sodium hydroxide and potassium hydroxide.
14. A process according to claim 10 wherein said solubilizer is an amine.
- 25 15. A process according to claim 10 wherein said solubilizer is ethanolamine.
16. A process according to claim 10 wherein said polycarbonate film selected from the group consisting of substituted and unsubstituted polycarbonates, polycarbonate blends, and polycarbonate copolymers.

17. A process according to claim 10 wherein the polycarbonate film comprises at least two different polycarbonates having etch rates different from each other such that when the polycarbonate film is contacted with the aqueous solution the different polycarbonates are etched to different depths.

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18. An article comprising a dielectric film comprising a polycarbonate selected from the group consisting of substituted and unsubstituted polycarbonates, polycarbonate blends, and polycarbonate copolymers, said dielectric film including at least one etched recessed region.

10 19. An article according to claim 18 wherein the dielectric film has a thickness of from about 25 μ m to about 300 μ m.

20. An article according to claim 18 wherein the thickness of the recessed region is reduced to less than about 25 μ m.

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21. An article according to claim 18 having a plurality of recesses at least two of which are etched to different depths.

20 22. An article according to claim 21 wherein at least two of the plurality of recesses etched to different depths are located in different regions, which different regions comprise different polycarbonates.

23. An article according to claim 18 comprising a polycarbonate film laminated to a different type of polycarbonate film or a thermoplastic film.

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